

NOT MEASUREMENT  
SENSITIVE

MIL-STD-904C  
15 JUL 2010

SUPERSEDING  
MIL-STD-904B  
10 MAR 2000

# **DEPARTMENT OF DEFENSE STANDARD PRACTICE**

## **DETECTION, IDENTIFICATION, AND PREVENTION OF PEST INFESTATION OF SUBSISTENCE**



AMSC N/A

FSC 89GP

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

# MIL-STD 904C

## FOREWORD

1. This Military Standard is approved for use by all Departments and Agencies of the Department of Defense (DOD).
2. This Military Standard specifies technical requirements for inspection of subsistence and food service functions to ensure clean, wholesome food products that are free from physical contaminants and to prevent transmission of foodborne disease to members of the Armed Forces, their beneficiaries, and DOD civilians. While the U.S. Code contains the regulations pertaining to these matters, the purpose of this standard is to select and compile the particular requirements and verification provisions, which have uniquely military applications.
3. This standard is applicable to all elements within the DOD involved in the inspection of subsistence items purchased with either appropriated or non-appropriated funds. This standard will not be used to determine the capability of an establishment to produce or furnish products or services which are in compliance with specifications or other purchase documents.
4. Beneficial comments (recommendations, additions, and deletions) and any pertinent data which may be of use in improving this document should be addressed to Director, DOD Veterinary Service Activity, Office of The Surgeon General/HQDA, 5109 Leesburg Pike, Falls Church, VA 22041-3258.
5. The web address for ASSIST online database is: <https://assist.daps.dla.mil>

# MIL-STD 904C

## Summary of Changes to MIL-STD-904B

Listed below are content changes that were made to the MIL-STD-904B during the manual evaluation and change to the MIL-STD-904C

- a. Added a Contents page.
- b. Section 2.2.2 – Addition of the manual “Technical Guide No. 38, Protecting Meal, Ready-to-Eat (MREs) and other Subsistence During Storage”
- c. Section 3 – Definitions added are “Aseptic technique; Categories of food inspection; Farinaceous; Primary container; Secondary container; Shipping case”.
- d. Section 3 – Terms or definitions that were changed are “Intermediate package; Package – primary or unit; Packaging; Packing; Unit package”.
- e. Section 4.2.2.1 – Title of Section changed to “Health Standards for determining the disposition of infested subsistence”.
- f. Section 5.2.1 – 5.2.4 – Changed terminology of “Class” to “Category”.
- g. Section 5.4.5 (a) – Added N95 mask to equipment
- h. Section 6.3 – Words added to Subject term (key word) listing are: Mice, Rat, Chlorine, Pest Management Program, Receipt Inspections, Surveillance Inspections, and Bait Station.
- i. Added FIGURE 1 - example of a completed DD Form 1222.
- j. Appendix B created for “List of Recommended Equipment”.
- k. Appendix C created for “References”.

## CONTENTS

<u>PARAGRAPH</u>	<u>PAGE</u>
FOREWORD.....	ii
SUMMARY OF CHANGES.....	iii
1 SCOPE.....	1
1.1 Scope.....	1
1.2 Application.....	1
2. <u>APPLICABLE DOCUMENTS</u> .....	1
2.1 General.....	1
2.2 Government documents.....	1
2.2.1 Specifications, standards, and handbooks.....	1
2.2.2 Other Government documents, drawings and publications.....	1
2.3 Non-Government publications.....	1
2.4 Order of precedence.....	2
3. <u>DEFINITIONS</u> .....	2
3.1 Aseptic technique.....	2
3.2 Blacklight.....	2
3.3 Categories of food inspection.....	2
3.4 Contamination.....	2
3.5 Decontamination.....	2
3.6 Dermestid.....	2
3.7 Entomologist.....	2
3.8 Farinaceous.....	2
3.9 Food inspection personnel.....	2
3.10 Government-owned subsistence.....	2
3.11 Infestable subsistence.....	2
3.12 Infestation.....	2
3.13 Insect.....	3
3.14 Insect-free.....	3
3.15 Medical authority.....	3
3.16 Medical hold.....	3
3.17 Packaging.....	3
3.18 Packing.....	3
3.19 Pest.....	3
3.20 Pest management personnel.....	3
3.21 Pest management program.....	3
3.22 Primary container.....	3

# MIL-STD 904C

3.23	<u>Recondition</u> .....	3
3.24	<u>Secondary Container</u> .....	3

<u>PARAGRAPH</u>	<u>PAGE</u>
------------------	-------------

3.25	<u>Shipping case</u> .....	3
3.26	<u>Surveillance inspection</u> .....	4
3.27	<u>Warranty action</u> .....	4

4.	<u>GENERAL REQUIREMENTS</u>	4
----	-----------------------------	---

4.1	<u>Acceptance or rejection of contractor-owned subsistence, except for retail stores</u> .....	4
4.1.1	<u>Packaging not breached</u> .....	4
4.1.2	<u>Contamination on packing</u> .....	4
4.2.	<u>Acceptance or rejection of Government-owned subsistence</u> .....	4
4.2.1	<u>Infestation prior to receipt</u> .....	4
4.2.2	<u>Infestation after receipt</u> .....	5
4.2.2.1	<u>Health Standards for determining the disposition of infested subsistence</u> .....	5
4.2.2.2	<u>Rodent contamination</u> .....	5
4.2.2.3	<u>Bird contamination</u> .....	5
4.2.2.4	<u>Miscellaneous animal contamination</u> .....	6

5.	<u>DETAILED REQUIREMENTS</u>	6
----	------------------------------	---

5.1	<u>Inspection of highly infestable subsistence</u> .....	6
5.1.1	<u>Sampling during inspection</u> .....	6
5.1.2	<u>Inspection methods</u> .....	6
5.1.2.1	<u>Closed-package inspection</u> .....	6
5.1.2.2	<u>Open-package inspection</u> .....	6
5.1.2.2.1	<u>Open-package methods for units of 10 lbs or less</u> .....	7
5.1.2.2.2	<u>Open-package method for units greater than 10 lbs</u> .....	7
5.1.2.3	<u>Evidence collection techniques for open-package inspection</u> .....	7
5.2	<u>Inspections of Government-owned subsistence</u> .....	7
5.2.1	<u>Any receipt except purchase (Category II)</u> .....	7
5.2.2	<u>Prior to Shipment (Category III)</u> .....	8
5.2.3	<u>At issue or sale (Category III)</u> .....	8
5.2.4	<u>During storage (Category III)</u> .....	8
5.3	<u>Inspection of storage areas</u> .....	8
5.3.1	<u>Frequency of inspection</u> .....	8
5.3.2	<u>Detection of insects in storage areas</u> .....	8
5.3.3	<u>Detection of rodents in storage areas</u> .....	9
5.3.4	<u>Detection of birds in storage areas</u> .....	9
5.3.5	<u>Detection of other animals in storage areas</u> .....	9
5.4	<u>Procedures following detection of infestation/contamination of Government-owned subsistence</u> .....	9

# MIL-STD 904C

5.4.1	<u>Medical hold of infested/contaminated items</u> .....	10
5.4.2	<u>Identification and reporting of infestation</u> .....	10

<u>PARAGRAPH</u>	<u>PAGE</u>
------------------	-------------

5.4.3	<u>Eradication Procedures</u> .....	10
5.4.3.1	<u>Fumigation</u> .....	10
5.4.3.2	<u>Freezing</u> .....	10
5.4.4	<u>Disposition procedures for insect infested products</u> .....	11
5.4.5	<u>Disposition of rodent /bird/other animal contaminated products</u> .....	11
5.5	<u>Preventing infestation/contamination in storage facilities</u> .....	12
5.5.1	<u>Sanitation procedures</u> .....	12
5.5.2	<u>Warehousing practices</u> .....	12
5.5.3	<u>Pest proofing storage facilities</u> .....	13

6.	<u>NOTES</u>	13
6.1	<u>Intended use</u> .....	13
6.2	<u>Acquisition requirements</u> .....	13
6.3	<u>Subject term (key word) listing</u> .....	13
6.4	<u>Changes from previous issue</u> .....	14

## FIGURE

1	<u>DD Form 1222</u> .....	15
---	---------------------------	----

## APPENDIX

A	<u>LIST OF ITEMS WITH HIGH POTENTIAL FOR INFESTATION</u> ..	16
B	<u>LIST OF RECOMMENDED EQUIPMENT</u> .....	18
C	<u>REFERENCES</u> .....	20

<u>CONCLUDING MATERIAL</u> .....	24
----------------------------------	----

## 1. SCOPE

1.1 Scope. This standard describes a set of practices that enable DOD personnel to effectively detect and prevent the infestation of contamination of subsistence items from exposure to insects, rodents, birds, or other animals and to reduce the impact of infestation or contamination. These practices can be used to prevent, detect, and evaluate damage to subsistence items. The practices described in this standard delineate inspection procedures, evidence collection techniques and equipment, sampling methods, and disposition procedures.

1.2 Application. This standard is applicable to elements within the DOD involved in the purchase, transportation, receipt, storage, and issuance of subsistence items.

## 2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they should meet all specified requirements documents cited in sections 3, 4, or 5 of this standard, whether or not they are listed.

### 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. This subsection is not applicable to this standard.

2.2.2 Other Government documents, drawings and publications. The following Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issue is that cited in the solicitation or contract.

Armed Forces Pest Management Board (AFPMB) Technical Guide (TG) No. 11,  
Hydrogen Phosphide Fumigation with Aluminum Phosphide.

Armed Forces Pest Management Board (AFPMB) Technical Guide (TG) No. 38,  
Protecting Meal, Ready-to-Eat (MREs) and other Subsistence during Storage.

(Copies are available from the Armed Forces Pest Management Board, Forest Glen  
Section, Walter Reed Army Medical Center, Washington, DC 20307-5001; or download  
from web site <http://www.afpmb.org/>)

2.3 Non-Government publications. The documents listed in Appendix C form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

## MIL-STD 904C

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. DEFINITIONS

3.1 Aseptic technique. Refers to removing product without introducing contamination.

3.2 Blacklight. An ultraviolet light used to detect rodent urine by virtue of its fluorescing properties, in order to validate other evidence of such contamination. (Since many substances fluoresce, this test should be used only for presumptive evidence).

3.3 Categories of food inspection. The three broad classifications of food inspection performed by U.S. Army Veterinary personnel include: Category I: Origin/Acceptance; Category II: Receipt; and Category III: Surveillance.

3.4 Contamination. The act or process of exposing a product to an adulterant or unwholesome material whether it is food pests, parts thereof, or their filth.

3.5 Decontamination. Removal or reduction of contaminants or infested items from products and/or packaging. Often include sanitizing of the container by cleaning, disinfecting, and rinsing, or repackaging.

3.6 Dermestid. Any beetle belonging to the family Dermestidae.

3.7 Entomologist. An individual with a bachelor's or higher degree in entomology (the scientific study of insects) who may be employed or contracted by the DOD (as a military officer or civilian) or a Federal/State Agency.

3.8 Farinaceous. Made from, rich in, or consisting of starch or having a mealy or powdery texture.

3.9 Food inspection personnel. DOD personnel responsible for the inspection of subsistence.

3.10 Government-owned subsistence. Subsistence owned by either appropriated or non-appropriated DOD activities/instrumentalities.

3.11 Infestable subsistence. Items whose nature and method of packaging make them subject to actual or potential pest infestation (see Appendix A).

3.12 Infestation. The presence of insects, rodents, birds, or other animals or parts thereof, or their wastes in or around subsistence such that the subsistence may be rendered unwholesome.



## MIL-STD 904C

3.13 Insect. All arthropods belonging to the class Insecta.

3.14 Insect-free. No insects, alive, dead, or any evidence of infestation including parts, silks, and frass (wastes) thereof, able to be seen during inspection of the subsistence.

3.15 Medical authority. DOD personnel whose duties include the authorization to condemn/dispose subsistence determined to be unwholesome or unfit for human consumption. These personnel are also the approval authority for the reconditioning procedures of subsistence.

3.16 Medical hold. Restrain of contaminated or infested items from distribution, issue or sale, when determined to be unwholesome for human consumption by food inspection personnel. Medical hold items can be released only when the food inspection personnel approve them to be released with documents based on laboratory test results or medical authority's approvals.

3.17 Packaging. The process whereby the individual items is protected by material such as cellulose casings (sausage items), cellophane (breads), cardboard cartons (eggs), cans (canned goods), and bottles (bottled goods). It may also be referred to as the primary container.

3.18 Packing. The process whereby one or more packages, intermediate packs, or items not requiring packaging, are held together either for the added convenience during shipment or for greater protection at a reduced cost.

3.19 Pest. Any insect, rodent, bird, or other animal that may render subsistence partially or wholly unwholesome for human consumption through infestation or contamination.

3.20 Pest management personnel. Military or civilian personnel trained to manage undesirable pests and certified (licensed) to use or apply pesticide chemicals.

3.21 Pest management program. A program incorporating continuous monitoring, education, record keeping, and communication to prevent pests and disease vectors from causing illness. It may also be referred to as an Integrated Pest Management Program.

3.22 Primary container. The immediate container in which the product is packaged and which serves to protect, preserve, and maintain the condition of the product.

3.23 Recondition. Elimination of contaminated packaging by cleaning and sanitizing the container, as needed, and repackaging in order to permit the product to be issued.

3.24 Secondary container. The container in which one or more primary containers are packed.

3.25 Shipping case. The container in which the primary or secondary containers are placed to protect, preserve and maintain the condition of the product during transit or storage.

## MIL-STD 904C

3.26 Surveillance inspection. Inspections made to determine if Government-owned subsistence is wholesome and suitable for further storage, shipment, issue, sale, and consumption.

3.27 Warranty action. Administrative steps taken by the responsible contracting officer to recover losses from a contractor for subsistence products which were accepted, but for which evidence indicates infestation or contamination occurred prior to Government acceptance.

### 4. GENERAL REQUIREMENTS

4.1 Acceptance or rejection of contractor-owned subsistence, except for retail stores. Any shipment of subsistence from a commercial source found to be infested or contaminated upon receipt shall be rejected, except under the conditions described in 4.1.1 and 4.1.2.

4.1.1 Packaging not breached. When food inspection personnel determine that the infestation or contamination has not breached the packaging of the product, and if the infestation or contamination is minimal, the accountable officer, with the concurrence of the medical authority, may accept the shipment under the following conditions:

a. There is an immediate urgent need for this particular shipment which cannot be met if the delivery is rejected.

b. If stored product pest insects were found in the products, below the acceptance level of infestation described in 4.2.2.1, the subsistence shall be fumigated at the contractor's expense prior to unloading or frozen at 0 °F for two weeks prior to placement in the normal storage area in the warehouse.

4.1.2 Contamination on packing. When contamination is detected only on packing, the shipment may be accepted under the following conditions:

a. The package or secondary container can be removed in an uncontaminated condition.

b. If it is possible to decontaminate packaging of contaminated units, decontamination shall be done at the contractor's expense with prior approval of the proposed decontamination method from the medical authority and contracting officer. The decontaminated products shall be frozen at 0 °F for a minimum of two weeks to kill all stages of insects potentially present within the products.

4.2 Acceptance or rejection of Government-owned subsistence. Government-owned subsistence acquired from a commercial source shall be rejected, condemned and disposed of, or accepted, under the conditions described in 4.2.1 through 4.2.2.4.

4.2.1 Infestation prior to receipt. If Government-owned subsistence is found to be infested or contaminated, and the condition is determined to have existed at the time of receipt, the

## MIL-STD 904C

accountable officer shall initiate warranty action and immediately arrange with the contractor for disposition of the subsistence.

4.2.2 Infestation after receipt. If infestation or contamination of Government-owned subsistence is determined to have occurred after receipt, the requirements in 4.2.2.1 through 4.2.2.4 shall apply.

4.2.2.1 Health standards for determining the disposition of infested subsistence. The lot shall be condemned under the following conditions (see 5.4.3):

a. When at least one living or dead larval stage of an insect species belonging to the genus *Trogoderma* or to other dermestid genera, is found within the product itself (not external).

b. When an average of three or more living or dead insects belonging to the genus *Tribolium* per pound of products is found, within the packages inspected.

c. When an average of seven or more living or dead insects per pound of product is found involving insects other than those belonging to the genus *Trogoderma* (or other dermestid genera) or the genus *Tribolium*.

d. Excluding retail sales, if the level of insect infestation falls short of the standards in a, b, and c above, the eradication procedures as specified in 5.4.3., shall be followed, and the subsistence shall be labeled with a warning as specified in 5.4.4.c.

4.2.2.2 Rodent contamination. Contaminated units (boxes, cases, bags), shall be condemned under the following conditions (see 5.4.4):

a. When any evidence of rodent infestation/contamination is found within product packaging.

b. When penetration of packaging by rodent feces/urine is detected by the presence of urine stains or feces visible under normal light or blacklight.

c. When the existence of a gnawed hole through the innermost layer of packaging is detected.

d. When external contamination of waterproof containers (for example, cans) containing product is detected, unless it is possible to sanitize the container by cleaning, disinfecting, and rinsing it under the direction of the medical authority. The entire pallet shall be condemned when rework cost is estimated to exceed the value of the product salvaged.

4.2.2.3 Bird contamination. Any unit of product contaminated by bird parts/excreta shall be condemned unless the package has not been penetrated and it is possible to sanitize the container

by cleaning, disinfecting, and rinsing or repackaging it under the direction of the medical authority.

4.2.2.4 Miscellaneous animal contamination. Any unit of product contaminated by the feces or urine, or penetrated by the teeth or claws of any animal shall be condemned. If the package has not been penetrated and the container can be sanitized by cleaning, disinfecting, and rinsing or repackaging under the direction of the medical authority, the product may be issued.

## 5. DETAILED REQUIREMENTS

5.1 Inspection of highly infestable subsistence. Inspection of subsistence items listed in Appendix A shall be performed during off-loading at arrival, before being reshipped, and at predetermined intervals during storage, as described in 5.1.1 through 5.1.2.3.

5.1.1 Sampling during inspection. During inspection, sampling for detection of infestation/contamination shall be conducted. The following documents provide guidance on determining sample size: Appendix S of DLAR 4155.37/AR 702-18/NAVSUPINST 4410.56/AFR 69-10/MCO 4450.13, AR 40-656, or AFI 48-116 as appropriate (see Appendix C). Samples shall be taken as follows:

- a. From products that are considered to have a high potential for infestation (see Appendix A).
- b. From areas most likely to be infested/contaminated, such as outermost containers on the top and bottom of a stack, the areas closest to an established problem area, or the areas close to entry and gates or by walls and equipments.
- c. From subsistence that has been stored near infested/contaminated products.
- d. From aged items and products with damaged or breached packages/containers.

5.1.2 Inspection methods. Closed and open-package inspections shall be conducted, as appropriate, as described in 5.1.2.1 through 5.1.2.3. Sample size selection shall be adjusted from the standard in accordance with local command policies.

5.1.2.1 Closed-package inspection. All seams, tucks, and open areas of all samples shall be examined for the presence of insects using a focused light source and magnifier. The samples shall be scrutinized for small insect penetration holes and rodent, bird, or animal contamination or damage.

5.1.2.2 Open-package inspection. If insect infestation or contamination problems are suspected or discovered, an open-package inspection shall be performed to ascertain the nature of the problem, to determine the number of insects per pound inspected, and to obtain samples for

## MIL-STD 904C

laboratory identification. These products shall be segregated and placed on medical hold until a final disposition can be made.

5.1.2.2.1 Open-package methods for units of 10 lbs or less. The entire contents of primary containers that weigh 10 pounds or less shall be opened and examined for infestation or damage.

5.1.2.2.2 Open-package method for units greater than 10 lbs. A three-pound sample shall be taken using an aseptic technique from the following locations when package units weigh 10 pounds or more:

- a. Top of unit next to the opening.
- b. Bottom of unit next to the seal or seam.
- c. Adjacent to the tears or holes.

5.1.2.3 Evidence collection techniques for open package inspection. When an open-package examination method is used, the resulting sample shall be screened for insects and the insect samples shall be prepared for laboratory identification as follows:

a. Spread the sample thinly on an examination table covered with light-colored disposable paper or on a white-colored food chopping board. Alternatively, shake the product through the proper size sieve (see Appendix B) onto the paper or the chopping board.

b. Using a high intensity light source and magnifier, isolate any live or dead insects using tweezers or a brush dipped in alcohol. Pick up immature or adult insects other than moths with the brush or tweezers and place them in screw-top vials filled with 70 % ethyl alcohol. Place adult moths, and any other suspected contaminants, in screw top containers, pillboxes, or petri dishes of an appropriate size, without any type of liquid preservatives. Use tissue paper to protect dry specimens. Additional information is available in DSCPM 4155.6, Subsection 218.2 (see Appendix C).

5.2 Inspections of Government-owned subsistence. These inspections shall be performed to determine suitability for further storage, shipment, issue, sale, or consumption. The types of inspections performed are as specified in 5.2.1 through 5.2.4 and defined in AR 40-657/NAVSUPINST 4355.4F/MCO P10110.31G.

5.2.1 Any receipt except purchase (Category II). The conveyance, and the subsistence it contains, shall be closely examined to detect infestation/contamination which may have occurred during transport. Subsistence shipped to or from tropical climates shall be subjected to especially thorough inspection. During warm periods of the year, subsistence shipped via rail car should be fumigated while in transit if permitted by the label. The fumigation procedures contained in AFPMB TG No.11 shall be followed. Upon arrival of fumigated rail cars, the receiving officer

## MIL-STD 904C

shall notify pest management personnel who shall ensure that the conveyance is detoxified prior to unloading.

5.2.2 Prior to Shipment (Category III). Government-owned subsistence that is to be shipped and the conveyance in which it will be shipped shall be inspected for infestation/contamination before loading, prior inspection at receipt and during storage notwithstanding. Guidance for naval vessels can be found in the U.S. Navy Shipboard Pest Control Manual (see Appendix C).

5.2.3 At issue or sale (Category III). Subsistence shall be examined for infestation/contamination at time of sale or issue, prior inspection at receipt and during storage notwithstanding.

5.2.4 During storage (Category III). Subsistence in storage shall be examined for infestation/contamination on a cyclical basis, giving special attention to the subsistence items listed in Appendix A. Inspection frequency shall be determined by the medical authority (in conjunction with the local pest management personnel) based on specific or changing environmental conditions, infestation history, and status of facility sanitation. General guidance:

a. Cool temperatures, negative findings for pests, and good sanitation practices are justification to reduce the frequency of inspection.

b. Warm storage temperatures shorten insect developmental time and are justification for more frequent inspection of infestable items.

c. Poor sanitation/facility maintenance or any recent pest infestation/activity either in subsistence or in the storage area is justification to increase inspection frequency to monthly or shorter interval.

5.3 Inspection of storage areas. DLAM 4145.12 (see Appendix C) provides guidelines for an effective stored products pest management program.

5.3.1 Frequency of inspection. Subsistence dry storage areas shall be routinely inspected at least monthly by food inspection personnel for general condition of sanitation, sanitary practice of warehouse management, structural fails and pest infestations. Joint inspections of these areas shall be conducted quarterly with pest management personnel. Training for warehouse management personnel shall be conducted by food inspection personnel biannually or more frequently, to educate them on proper warehouse management practice and sanitation procedures in order to keep the storage areas pest-free. A record of inspections and training shall be maintained by local food inspection personnel.

5.3.2. Detection of insects in storage areas. All shipments of subsistence items carry the potential to infest storage areas, even though there is no apparent evidence of insects. Inspectors shall

## MIL-STD 904C

bring an intensive light source, magnifier, black lights, note, pen, disposable gloves, sample container and permanent marker for collecting samples.

Inspections shall be performed as follows:

- a. Warehouse windows shall be checked for flying insects.
- b. Floors, walls, and pallets shall be examined for insects, both live and dead, or their evidence, such as silks and frass that have emerged from subsistence items. Insect harborages, and food sources such as spilled foods, trash, surplus wood pallets and packing materials shall be checked.
- c. Insect pheromone traps shall be utilized in the surveillance program where practical.
- d. Sacked and boxed farinaceous items shall be checked around the end seals and stitching.
- e. Grain-based rodent bait boxes shall be checked for infestation.
- f. Insect bait stations/pheromone traps/light traps shall be monitored by pest management personnel, in accordance with the Pest Management Program.
- g. If insects are discovered, specimens shall be collected and prepared in accordance with paragraph 5.1.2.3.

**5.3.3 Detection of rodents in storage areas.** Storage areas shall be monitored for signs of rodent infestation, such as: droppings (size and age); runways (along walls, steps, and rafters); rub marks (fresh or aged); burrows (fresh or old); gnawing (recent or weathered); and tracks (sharp and distinct or dust covered). Blacklights shall be utilized to detect the presence of urine strains or feces.

**5.3.4 Detection of birds in storage areas.** Storage areas shall be monitored for signs of bird infestation, such as droppings, feathers, and nesting materials. Even if birds are not seen, the topmost stacks of subsistence shall be routinely inspected for bird droppings.

**5.3.5 Detection of other animals in storage areas.** Signs of the presence of other animals in a subsistence warehouse include seeing the animals, or finding droppings, hair, or damaged products. The animals shall be located and removed by the appropriate animal control activity. Potential animal entrances shall be located and sealed.

**5.4 Procedures following detection of infestation/contamination of Government-owned subsistence.** When infested/contaminated Government-owned subsistence is detected, the procedures of warranty action in paragraphs 5.4.1 through 5.4.4 shall be followed.

5.4.1 Medical hold of infested/contaminated items. Infested/contaminated items shall be put on medical hold, segregated and covered with plastics, until notified by the food inspection personnel. Food inspection personnel should provide warehouse management personnel/contractors documentation (DD Form 1232 and DA Form 7538) for guidance of condemnation/release of the medical hold item based on the identification of pests by an entomologist.

5.4.2. Identification and reporting of infestation. To enable DOD to accurately assess and manage stored subsistence losses, all insect infestations shall be identified and reported. The submission of specimens to an entomologist for identification should be accompanied by a DD Form 1222 (see figure 1 for an example of a completed DD Form 1222). Copies of DD Form 1222, Request For and Results of Tests, can be obtained from the point of contact identified on the following web site: <http://web1.whs.osd.mil/icdhome/fman.htm> or downloaded from the following web site: <http://web1.whs.osd.mil/icdhome/FORMSPUBS.HTM/>. Instructions on how to complete a DD Form 1222 can be found in DSCPM4155.6, subsection 207.1.

5.4.3 Eradication Procedures. Eradication procedures include freezing and fumigation of subsistence as outlined in 5.4.3.1 and 5.4.3.2.

5.4.3.1 Fumigation. Infested subsistence that is not immediately destroyed, frozen, or removed shall be promptly fumigated by pest management personnel in accordance with AFPMB TG No. 11. Meal, Ready-to-Eat (MRE) rations and other operational rations packaged in foil or laminated pouches should not be fumigated without guidance of the medical authority in accordance with AFPMB TG No. 38. If the insect levels exceed those required in paragraph 4.2.2.1 or if the appropriate authority elects not to recoup the infested subsistence, immediate disposition shall be made to prevent further infestation. Fumigation of subsistence onboard ships is not authorized.

5.4.3.2 Freezing. Freezing infested subsistence at 0° F for a minimum of two weeks, which kills the insects and their eggs, is an acceptable alternative to fumigation. If the insect levels exceed those required in paragraph 4.2.2.1 or if the appropriate authority elects not to recoup the infested subsistence, immediate disposition shall be made to prevent further infestation.

5.4.3.3 Procedures after fumigation. Once the fumigated subsistence is aerated and the area is declared safe by pest management personnel, the effectiveness of the fumigation and the fitness of the subsistence for consumption shall be determined so that a disposition recommendation can be made. A statistically sound estimate of the degree of infestation shall be made based on the following criteria:



## MIL-STD 904C

TABLE I. Sample Sizes for post-fumigation inspection.

Lot Size (Primary Container)	Sample Size
2 to 15	2
16 to 30	3
51 to 150	5
151 to 500	8
501 to 3200	13
3201 to 35000	20
35001 to 500000	32
500001 and over	50

5.4.4 Disposition procedures for insect infested products. After the infesting insect has been identified, and the infestation does not exceed the requirements of paragraph 4.2.2.1., the infested subsistence shall be subject to the following actions:

a. Infested subsistence, whether in depots or installations, shall not be shipped to another potential user. If not suitable for local use, it shall be destroyed.

b. If inspection reveals the product is within safe tolerances in accordance with 4.2.2.1 after it has been fumigated or held at 0° F for a minimum of two weeks, a recommendation may be made by food inspection personnel to the accountable officer that the product be issued if needed.

c. The exterior of the shipping containers shall be marked in the following manner to inform the final user of the product's condition:

"This product has been found to contain insects which were killed by fumigation or freezing. Food inspection personnel have examined this product, and having found it to be in conformance with approved health standards as specified in MIL-STD-904C and have declared it fit for human consumption. It is recommended that the product be sifted before use."

d. Known infested product will not be sold in retail stores.

e. When the identified stored product pests are invasive or subject to quarantine in the area, the procedure of disposition procedure should comply with applicable Federal, State, local, and host nation laws or contracts.

5.4.5 Disposition of rodent/bird/other animal contaminated products. When rodent, bird, or other animals' contaminants are found within subsistence, the products will not be accepted for human consumption. When the contaminants are only found on the packaging/container, the products can be accepted after a thorough decontamination procedure. Care in handling rodent

## MIL-STD 904C

contaminated materials shall be observed. (Note: The concern is for diseases associated with rodents, for example, Hantaviruses).

a. Protective gloves and N95 particulate respirator shall be used to avoid direct contact with or inhalation of urine and feces.

b. Decontaminate the surface of infested packages with a chlorine solution (three tablespoons bleach per gallon of water) or other sanitizer.

c. Before disposing the contaminated items, seal any holes to prevent leakage or place damaged packages in a plastic bag.

d. If entire pallets are condemned, it is desirable to seal them with plastic sheeting. Segregate damaged materials for reimbursement or dispose of them in accordance with local laws and policies.

e. In warehouses where infestations by vertebrate pests are extensive, it may be necessary to use a negative pressure respirator fitted with a High Efficiency Particulate Air (HEPA) filter. Issuance of this type of respirator mandates that the employee be included in a properly established respiratory protection program. Heavily contaminated areas should be treated with a 10% chlorine solution (one part bleach to nine parts water).

5.5 Preventing infestation/contamination in storage facilities. The control measures in 5.5.1 through 5.5.3 shall be employed to decrease the incidence and severity of pest infestation of stored subsistence.

5.5.1 Sanitation procedures. Housekeeping and sanitation practices, such as immediate clean-up of spilled items, disposal or repair of damaged containers, daily sweeping of floors, and frequent cleaning of all shelving and equipment shall be routinely employed. Weekly or monthly cleaning of floors, with hot/cold water, steam or vacuum cleaners, shall be performed. Sanitary condition of outside warehouse, such as trash, heavy vegetation and debris, or surplus wooden pallets, can be potential insect harborages, thus need to be moved if found. Sanitary inspections shall be routinely performed with the frequency described in 5.3.1.

5.5.2 Warehousing practices. Warehousing practices that reduce opportunities for infestation/contamination shall be employed, such as:

a. Subsistence items shall be stored off of the floor on pallets or shelves to ensure proper cleaning.

b. Pallets and shelves shall be located at least 18 inches from walls to allow access for cleaning and inspections and to reduce harborages.

## MIL-STD 904C

c. Subsistence shall be stacked in a manner that minimizes crushing that may damage packages or packaging.

d. Subsistence items shall be rotated to prevent heavy infestation.

e. Bagged animal foods should be stored in a separate area from other subsistence items because of their propensity for infestation.

f. "First-In, First-Out" (FIFO) procedures shall be followed, when practical.

g. Garbage containers should be properly covered with covers or lids. They should be emptied and cleaned daily.

h. Equipment for controlling temperature, moisture and airflow, such as fans, ventilating machines, etc. shall be operated when practical. Improvement of drainage and installation of vents helps airflow, thus aiding in temperature and moisture controls. Daily temperature logs may be kept by warehouse employees.

5.5.3 Pest proofing storage facilities. All military subsistence storage facilities shall be constructed so that rodent, insect, and bird entry and harborage are minimized. All exterior openings larger than 1/4 inch shall be sealed with cement, 26-gauge or thicker sheet metal, or 1/4 inch hardware cloth. Windows must be properly installed with screening. Structural harborages such as double walls, spaces between floors, drop ceilings, and boxed-in pipes or beams shall be completely sealed or eliminated. Exhaust fans should be covered with operable louvers and/or 16-mesh screening.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but it is not mandatory.)

6.1 Intended use. This standard is intended to ensure that food products procured by DOD for use by Armed Forces personnel are safe and do not pose health risks.

6.2 Acquisition requirements. Acquisition documents should specify the title number and date of this standard.

6.3 Subject term (key word) listing.

Bait Station  
Bird  
Chlorine  
Contamination  
Entomologist

Food inspection

Fumigation

Insect

Mice

Pest Management Program

Rat

Receipt Inspections

Rodent

Surveillance Inspection

6.4 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue because of the extent of the changes.

# MIL-STD 904C

REQUEST FOR AND RESULTS OF TESTS				PAGE NO.	NO. OF PAGES
<b>SECTION A - REQUEST FOR TEST</b>					
<b>1. TO:</b> <i>(Include ZIP Code)</i> USACHPPM - N 4411 Llewellyn - MCHB - AN - ES Fort George G. Meade, MD 20755-5255 (301) 677-5281/3133			<b>2. FROM:</b> <i>(Include ZIP Code)</i> SPC Warrior Fort Sam Houston Branch, SPDVC Fort Sam Houston, TX 78234 (210) 221-1234		
<b>3. PRIME CONTRACTOR AND ADDRESS</b> <i>(Include ZIP Code)</i> Delgado's Deli Dry Goods 1692 Soldier Dr. San Antonio, TX 78209 CONTRACTOR NUMBER DECA02-09-G-0421			<b>4. MANUFACTURING PLANT NAME AND ADDRESS</b> <i>(Include ZIP Code)</i> Same P.O. NUMBER		
<b>5. END ITEM AND/OR PROJECT</b> Flour, Baking		<b>6. SAMPLE NUMBER</b> 01-10	<b>7. LOT NO.</b> 9087	<b>8. REASON FOR SUBMITTAL</b> Insect Infestation	<b>9. DATE SUBMITTED</b> 20090421
<b>10. MATERIAL TO BE TESTED</b> End Item	<b>10 a. QUANTITY SUBMITTED</b> 2 Bx.	<b>11. QUANTITY REPRESENTED</b> 150 Bx	<b>12. SPEC. &amp; AMEND AND/OR DRAWING NO. &amp; REV. FOR SAMPLE &amp; DATE</b> None		
<b>13. PURCHASED FROM OR SOURCE</b> DeCA - Fort Sam Houston, TX 78234		<b>14. SHIPMENT METHOD</b> Surface Mail	<b>15. DATE SAMPLED AND SUBMITTED BY</b> 21 APR 2009, SPC Warrior //originally signed//		
<b>16. REMARKS AND/OR SPECIAL INSTRUCTIONS AND/OR WAIVERS.</b> Requesting tests for insect identification					
<b>17. SEND REPORT OF TEST TO</b> SPC Warrior, Fort Sam Houston Branch, Fort Sam Houston, TX, 78234					
<b>SECTION B - RESULTS OF TEST</b> <i>(Continue on plain white paper if more space is required)</i>					
<b>1. DATE SAMPLE RECEIVED</b>		<b>2. DATE RESULTS REPORTED</b>		<b>3. LAB REPORT NUMBER</b>	
<b>4. TEST PERFORMED</b>	<b>RESULTS OF TEST</b>	<b>SAMPLE RESULT</b>	<b>REQUIREMENTS</b>		
<b>DATE</b>	<b>TYPED NAME AND TITLE OF PERSON CONDUCTING TEST</b>		<b>SIGNATURE</b>		

DD FORM 1222, FEB 1962

REPLACES DD FORM 1222, 1 JUL 58, WHICH IS OBSOLETE

APD PE v1.01ES

FIGURE 1. DD 1222

# MIL-STD 904C

## APPENDIX A

### LIST OF ITEMS WITH HIGH POTENTIAL FOR INFESTATION

#### A.1. SCOPE

A.1.1 Scope. This appendix is not a mandatory part of the standard. The information contained herein is intended for guidance only. This appendix identifies items that have a high potential for infestation. Items packaged in glass or cans are not susceptible to infestation unless infested prior to or during packaging. This list is not all inclusive.

#### A.2 Subsistence items with high potential for infestation.

A.2.1 Bakery & fry mixes

A.2.2 Bakery products

A.2.3 Candy (especially chocolate and nuts)

A.2.4 Cocoa & cocoa beverage powder

A.2.5 Coffee beans

A.2.6 Cookies & crackers

A.2.7 Dehydrated soups, vegetables & gravy mixes

A.2.8 Dried fruits and nuts

A.2.9 Dried meats and fish

A.2.10 Dry beans & peas

A.2.11 Dry milk & powdered dairy drinks

A.2.12 Dry pet food, including bird seed and laboratory animal food

A.2.13 Fresh fruits and vegetables

A.2.14 Grains (flour, cornmeal, grits, rice, barley, rolled oats, wheat base, popcorn, farina, and corn starch)

A.2.15 Granola bars

# MIL-STD 904C

## APPENDIX A

A.2.16 Grated cheese

A.2.17 Operational rations not packaged in cans, including assembled and unitized rations

A.2.18 Pasta products (macaroni, spaghetti, noodles & vermicelli)

A.2.19 Prepared breakfast cereals

A.2.20 Prepared coconut

A.2.21 Spices

A.2.22 Tea (especially herbal types)

A.2.23 Tobacco products

A.2.24 Yeast food

# MIL-STD 904C

## APPENDIX B

### LIST OF RECOMMENDED EQUIPMENT

#### B.1 SCOPE

B.1.1 Scope. This appendix is not a mandatory part of the standard. The information contained herein is intended for guidance only. This appendix lists equipment recommended to perform inspections of subsistence for infestation. This list is not all inclusive.

B.2 Equipment. The following equipment is recommended for pest surveillance by inspection personnel. Local supply personnel may be able to provide assistance in obtaining this or similar equipment:

B.2.1 Balance, trip, 2000-grain capacity (NSN 6670-00-401-7195) and weight set, balance, 100 gram to 1000 gram (NSN 6670-00-401-8830).

B.2.2 Flashlight, right angle (NSN 6230-00-264-826-1) or any portable high-intensity light source.

B.2.3 Magnifier (Reading Glass) (NSN 6650-00-252-6250).

B.2.4 N95 series particulate respirator, commercially available (NSN 6515-00-262-6765)

B.2.5 Paperboard shipping container (NSN 8115-00-511-5750).

B.2.6 Petri dishes, commercially available (NSN 6640-00-051-9495)

B.2.7 Pill boxes, commercially available.

B.2.8 Scalpel to open sample bags (NSN 6515-00-511-5750)

B.2.9 Screw cap vials, 9 ml (NSN 6640-00-408-2200) or 3 ml (NSN 664-000-408-2300).

B.2.10 Seventy percent ethyl or methyl alcohol to kill and preserve insects.

B.2.11 Sieves (available through scientific products companies).

B.2.12 For bulk products such as spaghetti, use U.S. Standard Sieve Series No. 5 and a ½- inch sieve. The product should be retained on the mesh while allowing the insects to fall.

B.2.12.1 For granular products such as meals, use US Standard Sieve Series Nos.10, 20.

B.2.12.2 For powdery products such as flour, use U.S. Standard Sieve Series Nos. 20, 30,



# MIL-STD 904C

## APPENDIX B

40, 50. The size of the sieve mesh should be large enough to allow the product to pass through while retaining the insects on the mesh.

B.2.13 Single use gloves, commercially available (NSN 8415-00-113-0424)

B.2.14 Small brush to transfer insects (NSN 8020-00-503-0000).

B.2.15 Tape to reseal sampled bags that are larger than 10 pounds.

B.2.16 Tweezers, commercially available (NSN 8530-01-360-5809)

B.2.17 Ultraviolet light, specimen examining (NSN 6530-00-663-2140), with two 45-volt batteries (NSN 6135-00-100-0464).

B.2.18 White or light colored disposable paper in rolls at least 3 feet wide.

# MIL-STD 904C

## APPENDIX C

### REFERENCES

#### C.1. SCOPE

C.1.1 Scope. This appendix is not a mandatory part of the standard. The information contained herein is intended for guidance only. This list is not all inclusive.

C.2 Entomological References. The references listed below are suggested for use by personnel involved in the inspection of subsistence. These references are for information only and should not be used as a substitute for qualified entomological guidance.

C.2.1 Bennet, G., Corrigan, R., and Owens, J. (Eds.). (1997). Truman's Scientific Guide to Pest Control Operations, 5<sup>th</sup> Edition. Advanstar Communications, Inc., 522 pages. Available from numerous sources including Amazon.com.

C.2.2 Buckle, A.P., and Smith, R.H. (Eds.). (1996). Rodent Pests and Their Control. CAB International, 10 East 40<sup>th</sup> Street, New York, NY 10016. Oxford University Press – USA. <http://www.oup-USA.org/>.

C.2.3 Ecology and Management of Food-Industry Pests. (1991). 595 pages. Available from AOAC International, 481 North Frederick Ave., Suite 500, Gaithersburg, MD 24486. <http://www.aoac.org/>

C.2.4 Gorham, J. Richard (Ed.). Principles of Food Analysis for Filth, Decomposition, and Foreign Matter. FDA Technical Bulletin No. 1, Second Ed. (1985). Available from AOAC International, 481 North Frederick Ave., Suite 500, Gaithersburg, MD 24486. <http://www.aoac.org/>

C.2.5 Mallis, Arnold and Moreland, Dan (Eds.). (1997). Handbook of Pest Control: The Behavior, Life History, and Control of Household Pests, 8<sup>th</sup> Edition, Mallis Handbook & Technical training Co. Can be ordered through most standard or on-line bookstores.

C.2.6 Military Pest Management Handbook, Chapter 8. Urban arthropods. Armed Forces Pest Management Board. Available from Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001: or download from web site: <http://www.afpmb.org/>.

C.2.7 Military Pest Management Handbook, Chapter 10. Rodents, Birds, Bats, and Other Nonarthropod Pests. Available from Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001: or download from web site: <http://www.afpmb.org/>.

# MIL-STD 904C

## APPENDIX C

C.2.8 Principal Storage Pests. (Illustrated guide, color). Available from Degesch America, Inc., P.O. Box 116, 275 Triangle Dr., Weyers Cave, VA 24486. (This is a large wall chart. There is also a foldout guide available for a fee.)

C.2.9 Stored Grain Insects. (Agriculture Handbook No. 500). (1986). Available through Association of Operative Millers, 5001 College Blvd., Suite 104, Leawood, KS 66211, (903) 338-3377. <http://www.trainingforum.com/ASN/AOM/index.html/>.

C.2.10 Timm, Robert M., (Ed.). (1986) Prevention and Control of Wildlife Damage. Cooperative Extension Service, University of Nebraska, Lincoln. Available from the Univ. of NE in print or CD-ROM format, approximate cost \$40.00 each or \$60 for both plus shipping and handling, <http://www.ianr.unl.edu/pubs/wildlife/> or (402) 472-2188.

C.2.11 U.S. Department of Agriculture. (1991). Insect and Mite Pests in Food: An Illustrated Key, (USDA Agricultural Handbook No. 655). 767 pages. Out of print, copies may be available from BioQuip, (310) 324-0620.

### C.3 Government documents.

C.3.1 AFI 48-116, Food Safety Program. Available only from website: <http://afpubs.hq.af.mil/>.

C.3.2 AFPMB Technical Guide (TG) 11, Hydrogen Phosphide Fumigation of Subsistence with Aluminum Phosphide. Available from the Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001; or download from web site: <http://www.afpmb.org/>.

C.3.3 AR 40-656, Veterinary Service Surveillance Inspection of Subsistence. Document No. AR 40-656 available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; 1-800-553-6847; or download from internet at <http://www.usapa.army.mil/>.

C.3.4 AR 40-657/NAVSUPINST 4355.4F/MCO P10110.31G, Veterinary/Medical Food Inspection and Laboratory Service. Document No. AR 40-657 available from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; 1-800-553-6847; or download from web site: <http://www.usapa.army.mil/>.

C.3.5 ASTM-D-996, Standard Terminology of Packaging and Distribution Environments. Available from American Society for Testing and Material, 100 Bar Harbor Drive, West Conshohocken, PA 19428-2959; or from website: <http://www.astm.org/sitemap.html/>.

# MIL-STD 904C

## APPENDIX C

C.3.6 DLAM 4145.12/TM 38-400/NAVSUP PUB 572/AF MAN 23-210/MCO 4450-14 Joint Service Manual (JSM) for Storage and Materials Handling. Available from Defense Logistics Agency Publishing System, 8725 John J. Kingman Drive, Ft. Belvoir, VA 22060; (703) 767-3506.

C.3.7 DLAR 4155.37/AR 702-18/NAVSUPINST 4410.56/AFR69-10/MCO 4450.13, Defense Logistics Agency Material Quality Control Storage Standards. Available from Defense Logistics Agency Publishing System, 8725 John J. Kingman Drive, Ft. Belvoir, VA 22060; (703) 767-3506.

C.3.8 DSCPM 4155.6, Subsection 218.2, Defense Personnel Support Center Inspection Manual, Destination (Surveillance) Inspection, Entomological Laboratory Identification Services. Available from Defense Supply Center Philadelphia, ATTN: DSCP-HS, 700 Robbins Avenue, Philadelphia, PA 19111-5092.

C.3.9 U.S. Navy Shipboard Pest Control Manual. Available from Navy Disease Vector Ecology and Control Center, Bangor, 19950 Seventh Ave. NE, Suite 201, Poulsbo, WA 98370-7405; (360) 315-4450; or download from web site: <http://164.221.226.57/>.

### C.4 Other documents not cited in this text.

C.4.1 AFPMB Technical Guide (TG) 27, Stored Product Pest Monitoring Methods. Available from the Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001; or download from web site: <http://www.afpmb.org/>.

C.4.2 AFPMB Technical Guide (TG) No. 29, Integrated Pest Management (IPM) in and around Buildings. Available from the Armed Forces Pest Management Board, Information Service Division, Ft. Detrick – Forest Glen Annex, Silver Spring, MD 20910-1230; or download from web site: <http://www.afpmb.org/>.

C.4.3 AFPMB Technical Guide (TG) No. 41, Protection from Rodent-borne Diseases with Special Emphasis on Occupational Exposure to Hantavirus. Available from the Armed Forces Pest Management Board, Forest Glen Section, Walter Reed Army Medical Center, Washington, DC 20307-5001; or download from web site: <http://www.afpmb.org/>.

C.4.4 Food Code , Department of Health and Human Services, Food and Drug Administration, Food Service Sanitation Branch, Washington, DC 20204. Document No. PB99-115925 available printed, on CD-ROM, and on diskette from National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; 1-800-553-6847; or download from web site: <http://vm.cfsan.fda.gov/~dms/foodcode.html/>.

# MIL-STD 904C

## APPENDIX C

C.4.5 DOD 4150.07-I, DOD Pest Management Program. Downloaded from web site:  
<http://www.afpmb.org/>.

# MIL-STD 904C

## CONCLUDING MATERIAL

### Custodians:

Army – MD2

Navy - SA

Air Force - 03

### Preparing Activity:

Army- MD2

Project No. 89GP-2010-003

### Review activities:

Navy – MS, MC

DLA - SS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities change, you should verify the currency of information above using the ASSIST online database at <https://assist.daps.dla.mil>